CLAIMS

1 A method for conditioning a substrate mass wherein the substrate mass is associated with an electrokinetic geosynthetic structure comprising geosynthetic material, in turn associated with at least one conducting element, and with at least one further conducting element, the conducting elements being located with the substrate mass including electrolyte therebetween, and wherein a supply system is associated with one of the conducting elements for supply of at least one conditioning material to be introduced into the substrate mass and applying a potential difference between the conducting elements which act as respective electrodes and thereby supply conditioning material to the substrate mass.

2 A method for conditioning a substrate mass as claimed in claim 1 wherein an evacuation system associated with one of the elements is provided for removal of at least one conditioning material or a waste material or by-product from the substrate mass.

3 A method for conditioning a substrate mass as claimed in claim 2 wherein the evacuation system is in hydraulic and electrical continuity with the electrokinetic geosynthetic structure and a reservoir.

4 A method for conditioning a substrate mass as claimed in any preceding claim wherein the supply system is in hydraulic and electrical continuity with the electrokinetic geosynthetic structure and a reservoir.

5 A method as claimed in any of the preceding claims comprising additionally reversing the polarity of the conducting elements during the

method, or supplying conditioning material of different charge during the method.

6 A method as claimed in any of the preceding claims wherein the substrate is selected from soil, loam, earth, sod, clay, weak rock, gravel, stones, sewerage, sludge and mixtures thereof.

7 A method as claimed in any of the preceding claims wherein a conditioning material is selected from water, aqueous media or solutions, salts, nutrients, supplementary carbon sources, supplementary oxygen sources, terminal electron acceptors, water retention materials, thickening materials, biomass, pH regulators, temperature regulators, minerals, reducing agents, oxidants, absorbents, metal particles, coated metal particles, non-metallic catalyst materials, grout, lime or mixtures thereof.

8 A method as claimed in any preceding claim wherein a conditioning material is a substrate mass softening material and the method comprises the further step of either burying or retrieving an object in/from the softened substrate mass.

9 A method as claimed in claim 8 wherein the softened substrate mass is returned to its former state after softening by reversing the potential difference between the conducting elements.

10 A method as claimed in any of clams 1-7 wherein the substrate mass comprises a structural foundation, a sports pitch, a leisure site or a field and wherein water is supplied to the substrate mass via the supply system and/or removed from the substrate mass via the evacuation system to thereby control the moisture content of the substrate mass.

11 A method as claimed in any of claims 2-10 wherein the substrate mass is soil, a conditioning material is a soil nutrient and the removed material is a soil contaminant, a by-product, excess water or a mixture thereof.

12 A method as claimed in any of claims 1-7 wherein a conditioning material is a decontaminant or contaminant absorbent.

13 A method as claimed in claim 12 wherein a second conditioning material is a contaminated material.

14 A method as claimed in either of claims 12 or 13 wherein the decontaminant/contaminant absorbent conditioning material comprises a bacteria.

15 A method as claimed in any of claims 1-7 wherein the conditioning material is a cohesion inducing material.

16 A method as claimed in any of claims 1-7 wherein the conditioning material comprises an electrolyte which serves to conduct a current between the elements to thereby kill contaminant bacteria in the substrate mass.

17 Substrate mass conditioning apparatus comprising an electrokinetic geosynthetic structure associated with at least one conducting element; at least one further conducting element; a supply system associated with one of the conducting elements for the supply of at least one conditioning material to be introduced into the substrate mass; and means for applying a potential difference between the conducting elements.

18 Apparatus as claimed in claim 17 comprising an evacuation system associated with one of the conducting elements for removal of at least one

conditioning material or of a waste material or by-product from the substrate mass.

19 Apparatus as claimed in either of claims 17 or 18 wherein the supply system and the optional evacuation system comprise respective reservoir(s) in hydraulic and electrical continuity with the electrokinetic geosynthetic structure.

20 Apparatus as claimed in claim 19 wherein at least one of said reservoirs is comprised within the substrate mass

21 Apparatus as claimed in any of claims 17-20 wherein the supply and/or removal system comprises a pump.

22 Apparatus as claimed in any of claims 17-21 wherein one or more of said at least one further conducting element is a metallic non electrokinetic geosynthetic electrode.

23 Apparatus as claimed in any one of claims 17-22 wherein the electrokinetic geosynthetic structure comprises a solid body having a central core which serves as the supply system and/or reservoir and optionally as the evacuation system and/or reservoir.

24 Apparatus as claimed in any one of claims 17-23 wherein the electrokinetic geosynthetic structure comprises a pure or composite metallic or a conducting non-metallic.

25 Apparatus as claimed in any of claims 17-24 wherein the electrokinetic geosynthetic structure comprises one or more lines of spaced elongate conducting members.

26 Apparatus as claimed in any of claims 17-25 wherein the electrokinetic geosynthetic structure comprises a reinforcing element

27 Apparatus as claimed in claim 26 wherein the electrokinetic geosynthetic structure provides a longitudinal axis and the reinforcing element comprises at least one high strength elongate element running parallel to the longitudinal axis of the electrokinetic geosynthetic structure.

28 Apparatus as claimed in any of claims 17-27 wherein the electrokinetic geosynthetic structure comprises a non-conductive material with conductive material running through it at least partially on a surface of the structure.

29 Apparatus as claimed in any of claims 17-28 wherein the electrokinetic geosynthetic structure is in the form of a continuous elongate tube, tape or rope.

30 A substrate mass conditioned using the method as claimed in any of claims 1-16 and/or a substrate mass conditioned using the apparatus as claimed in any of claims 17-29.

31 Substrate mass conditioning apparatus and/or a method for conditioning substantially as herein before described and/or illustrated with reference to the accompanying description and/or drawings.